What is claimed is:

1. A premixed air-fuel mixture supply device combined with a combustor liner included in a combustor, said premixed air-fuel mixture supply device comprising:

a prevaporizing, premixing unit having inner and outer walls defining a prevaporizing, premixing chamber; and

a wall surrounding an end part of the outer wall so as to define a secondary combustion air passage together with the end part of the outer wall around the prevaporizing, premixing chamber;

wherein a tail part of the outer wall is shaped in an atomization lip.

2. The premixed air-fuel mixture supply device according to claim 1 further comprising a swirl device disposed in the secondary combustion air passage.

3. The premixed air-fuel mixture supply device according to claim 1 or 2, wherein the atomization lip is formed such that a tail part thereof lies at or near an exit of the prevaporizing, premixing chamber.

4. The premixed air-fuel mixture supply device according to any one of claims 1 to 3, wherein an extremity of the tail part of the atomization lip is formed in a sharp edge.

5. The premixed air-fuel mixture supply device according to any one of claims 1 to 3, wherein an extremity of the tail part of the atomization lip is cut perpendicularly or substantially perpendicularly to the flowing direction of the combustion air.

6. The premixed air-fuel mixture supply device according to any one of claims 1 to 3, wherein an extremity of the tail part of the atomization lip is cut perpendicularly or substantially perpendicularly to the flowing direction of the combustion air, and the extremity of the tail part of the atomization lip has a thickness between 1 to 3 mm.

7. The premixed air-fuel mixture supply device according to any one of claims 1 to 6, wherein the secondary combustion air passage is formed around the prevaporizing, premixing chamber, and a sectional area of the secondary combustion air passage is 5% or below of a total sectional area of the prevaporizing, premixing chamber and the secondary combustion air passage.

8. The premixed air-fuel mixture supply device according to any one of claims 1 to 7, wherein the secondary combustion air passage is formed around the prevaporizing, premixing chamber, and a sectional area of the secondary combustion air passage is 5 to 10% of a total sectional area of the prevaporizing, premixing chamber and the secondary combustion air passage.

9. The premixed air-fuel mixture supply device according to any one of claims 1 to 8, wherein the secondary air passage is formed around the prevaporizing, premixing chamber, and thickness of the atomization lip formed in the tail part of the inner wall defining the secondary combustion air passage decreases in the flowing direction of combustion air so that an inside diameter of the atomization lip increases gradually in the flowing direction of combustion air.

10. The premixed air-fuel mixture supply device according to any one of claims 1 to 8, wherein the secondary combustion air passage is formed around the prevaporizing, premixing chamber, and thickness of the atomization lip formed in the tail part of the inner wall defining the secondary combustion air passage decreases in the flowing direction of combustion air so that the outside diameter of the atomization lip decreases gradually in the flowing direction of the combustion air.

11. The premixed air-fuel mixture supply device according to any one of claims 2 to 10, wherein the

secondary combustion air passage is formed around the prevaporizing, premixing chamber, the swirling device disposed in the secondary combustion air passage swirls combustion air flowing through the secondary combustion air passage in one direction, and swirling devices disposed in an inner passage swirl combustion air flowing through the inner passage in the same direction.

12. The premixed air-fuel mixture supply device according to any one of claims 2 to 10, wherein the secondary combustion air passage is formed around the prevaporizing, premixing chamber, the swirling device disposed in the secondary combustion air passage swirls combustion air flowing through the secondary combustion air passage in one direction, and swirling devices disposed in an inner passage swirl combustion air flowing through the inner passage in a direction opposite the direction in which the swirling device disposed in the secondary combustion air passage swirls the combustion air flowing through the secondary air passage.

13. The premixed air-fuel mixture supply device according to any one of claims 1 to 12, wherein the prevaporizing, premixing unit injects the fuel in a direction substantially the same as the flowing direction of combustion air.

14. The premixed air-fuel mixture supply device according to any one of claims 1 to 13, wherein the secondary combustion air passage is formed around the prevaporizing, premixing chamber, and velocity of combustion air at the exit of the secondary combustion air passage is equal to or not lower than velocity of air flowing through the inner passage.